

BACCHARIS VANESSAE, A NEW SPECIES FROM
SAN DIEGO COUNTY, CALIFORNIA

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Field investigations in central coastal San Diego County have been rather intensive lately due to the numerous housing projects proposed there as well as to the state environmental protection laws which require such investigations. The survey of a 3-acre parcel during October, 1976 disclosed an undescribed Baccharis.

Baccharis vanessae sp. nov., *B. sarothroideo* similis sed involucri pistillati bracteis recurvatis ad reflexis, habitationeque in vegetatione densa sclerophylla nec in ripis alisque locis turbatis.

Diocious broom-like shrub 0.5-1.3 (2) meters high. Stems terete to slightly sulcate, green at first then browning, with 5-7 lighter green longitudinal veins, numerous, slender and diffuse from a resprouting root crown. Internodes 3-24 mm. Leaves alternate, sessile, glabrous, narrowly oblanceolate to filiform, mucronate, 10-30 mm long, 1-3 mm wide, revolute and entire; deciduous after the first year. Heads solitary to glomerate on peduncles 3-40 mm long; involucre ca. 4-seriate, 3-5 mm in diameter in both sexes; phyllaris 23-30, lanceolate, scurfy-glandular, 2-6 mm long, chartaceous with a wide, green acuminate midrib and narrow, light green lacerate-ciliate margins, maturing dark brown; conspicuously reflexed on pistillate heads at maturity. Pistillate flowers ca. 25; corolla 2.5 mm long; style maturing to 5 mm long; achenes 2-3 mm long, rugulose, 10-nerved, glabrous; pappus uniseriate, white, 7-10 mm long. Staminate flowers ca. 15; corolla 4 mm long, the lobes 1.5 mm long, reflexed at anthesis; anther column 2 mm long, exerted; pappus uniseriate, light brown, 3-4 mm long. Chromosomes: $2n = 9$ pairs (Figure 1).

Type: United States: California: San Diego County: In Chaparral on Eocene sandstone along the north side of Encinitas Boulevard, 0.6 Km west of El Camino Real, elevation 90 meters, lat. $33^{\circ} 02' 50''N$ - long. $117^{\circ} 20'W$, 24 October, 1976, Beauchamp 4250 (Holotype: SD, Isotypes: MIN, NY, RSA, UC, US).

The specific epithet honors the author's first daughter. The plant is commonly referred to as Encinitas *Baccharis*.

The species differs from other known *Baccharis*, especially those in the southern California and adjacent northern Baja California area by its filiform leaves and delicate phyllaries which reflex at maturity (Figures 2 & 3). Also, unlike many of the sympatric *Baccharis*, i.e. *B. sarothroides*, *B. glutinosa*, *B. sergiloides* and *B. pilularis* ssp. *consanguinea*, which occur in disturbed or riparian situations; this new taxon grows in dense Chaparral vegetation which is dominated by *Adenostoma fasciculatum*, *Quercus dumosa*, *Xylococcus bicolor*, *Salvia mellifera*, *Arctostaphylos glandulosa* ssp. *crassifolia* and *Ceanothus verrucosus*, characteristically a closed type of plant community.

Although no burns have occurred recently in the vicinity of *B. vanessae*, the species appears to be able to regenerate from underground parts after being cleared by mechanical means.

B. vanessae occurs on three soil types. At the coastal sites about Green Valley at Encinitas, the soil association is with an alluvial-Huehuero complex; at the inland sites near Mount Israel-Del Dios, Poway and Mira Mesa, the plants occur on San Miguel-Exchequer and Cieneba series soils (Figures 4 & 5).

The Encinitas population involves currently 150 plants. Several large stands in the area are known to have been destroyed by development. Transplantation of several plants has been attempted under the misguided interests of species preservation. These plants are located at San Dieguito County Park. The Mira Mesa and Poway sites consist of one specimen each, so, for this dioecious species, the population probably will not increase at these sites. The Mount Israel-Del Dios population consists of about 700 plants, a large portion of which will be included in open space preserve areas of residential developments in the area.

Because of its highly localized nature in Chaparral associated with the relictual Torrey Pine forests of coastal San Diego County, *B. vanessae* appears to survive as a relictual species. Recently, the northernmost, quite disjunct and presumably relictual stand of *Haplopappus orcuttii* was found in Chaparral very near a population of *B. vanessae*. Examination of *B. vanessae* material by Oscar F. Clarke, former herbarium curator at UC Riverside, revealed that *B. vanessae* stems were often swollen with galls after being parasitized by a lepidopteran. Such mutualistic associations further tend to indicate the relictual nature of *B. vanessae* (O.F. Clarke, pers. comm.).

As a check into a possible hybrid origin of this species, suggested by Dr. Arthur J. Cronquist, New York Botanical Gar-

den, (pers. comm.), a sample of immature staminate flowers was fixed, stained and examined microscopically. Normal segregation of the 9 chromosome pairs was observed (H.L. Wedberg, pers. comm.). Further, staining of pollen from immature flowers showed that 90% of the grains were well filled and presumably functional (J.D. Jackson, pers. comm.).

Many people aided in the research into this new species over the last 4 years. Dr. John D. Jackson, University of Minnesota, aided by commenting on material sent him as well as his examination of the pollen. Dr. Hale L. Wedberg, San Diego State University, prepared the chromosome squash and photographed the meiotic figures. Dr. Arthur Cronquist's sage comments resulted in further investigation into the range and possible hybrid origin of the species. Michael Milligan prepared the close-up photographs of the flowers and inflorescences. Bridget A. Blair prepared the line drawings, courtesy of Regional Environmental Consultants. Dr. Reid V. Moran, Curator of Botany, San Diego National History Museum, reviewed initial drafts of this paper and supplied data on Baja Californian Baccharis and Archibaccharis.

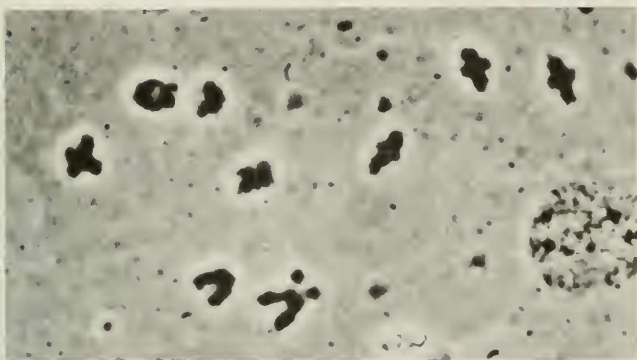


FIG. 1. Microphotograph of pachytene formation showing 9 bivalents in *B. vanessae* pollen mother cell.



FIG. 2. Photograph of staminate inflorescence of *B. vanessae*.

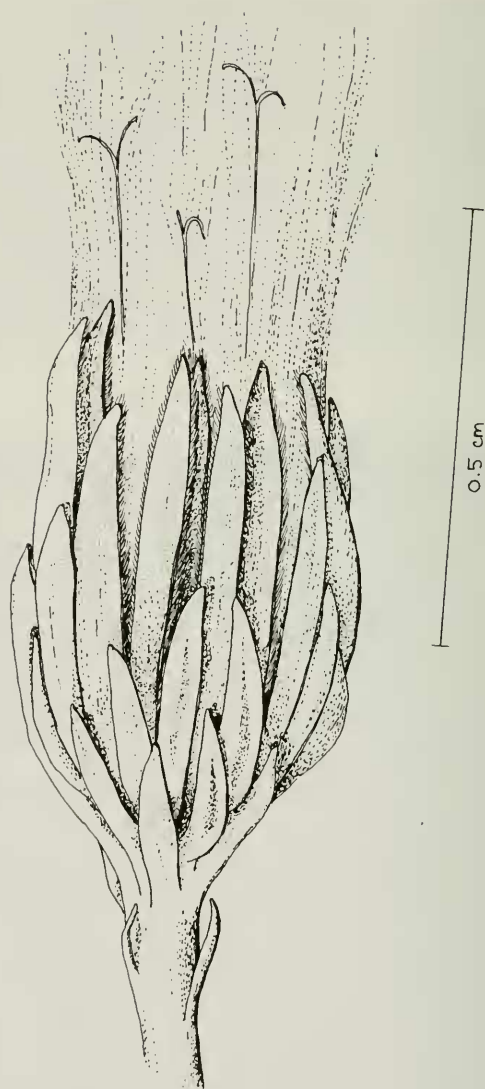
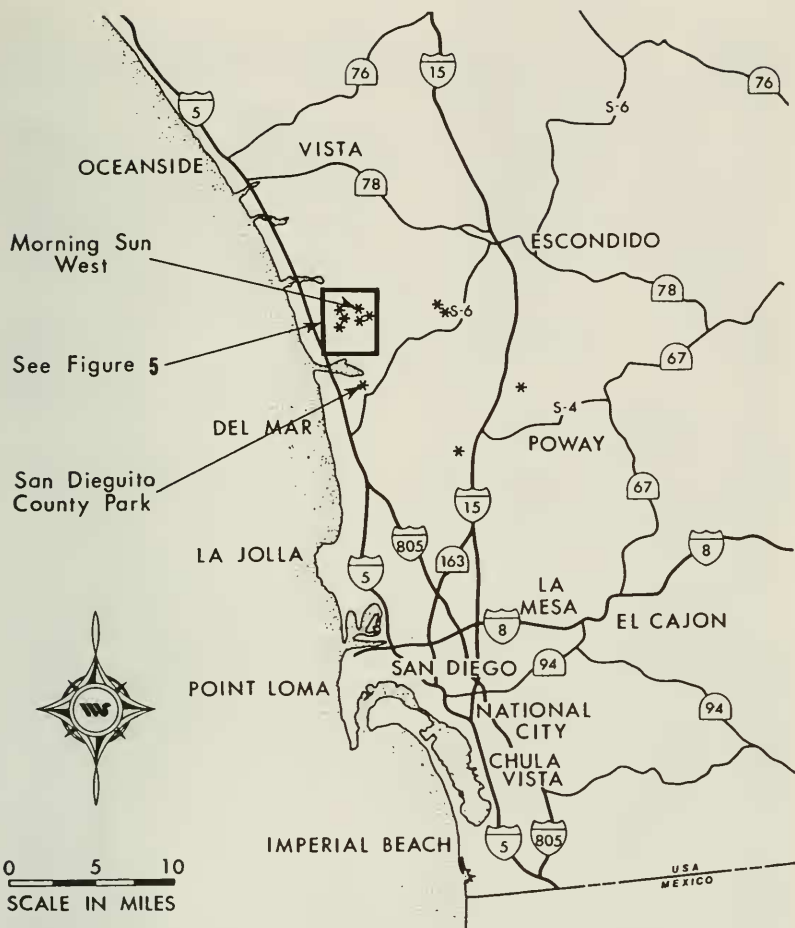


FIG. 3. Artist's rendering of a single pistillate flower of B. vanessae.



* Recorded locations of *Baccharis vanessae*

FIG. 4. Regional map of 4 known natural populations and single transplant site of *B. vanessae*, western San Diego County, California.

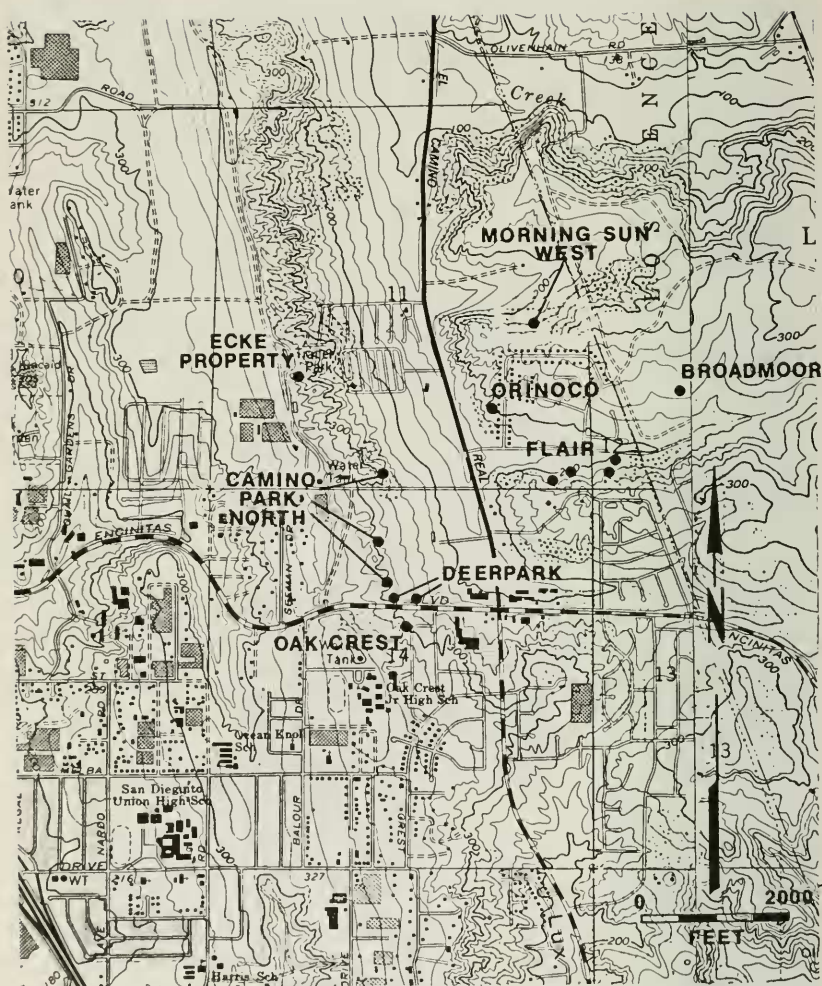


FIG. 5. Detailed map of Encinitas populations of *B. vanessae*. Sites east of El Camino Real now extirpated.